

Planetary Simulator

Planet Definitions

Summary:

Feature	Primordis	Terranova	Verdantia
Star Type	Class K5V orange dwarf	Class G2V yellow dwarf	Class F3V white star
Atmosphere	85% CO ₂ , 10% CH ₄ , 4% N, 1% other	78% N, 21% O ₂ , 1% other	75% N, 22% O ₂ , 3% other
Gravity	0.85 Earth's gravity	1.01 Earth's gravity	0.92 Earth's gravity
Continents	Protoa, Neona	Aurelia, Vespera, Solara, Mondara, Occidara	Zyphera, Serenora, Frosthalm
Oceans	Primal Sea	The Great Expanse	Azure Expanse
Climate	Stable, warmer at the equator, cooler at the poles	Diverse, with polar ice caps to tropical rainforests	Ranges from humid in Zyphera to icy in Frosthalm
Population	None (simple life forms)	Approx. 8 billion	Approx. 7 billion
Political Structure	None	Multiple nation-states, Terranovan Council	Planetary council
Economy	None	Technology, agriculture, trade, industry	Biotechnology, sustainable agriculture, eco-tourism
Technology	None	Comparable to 21st-century Earth	Advanced in biotechnology, renewable energy
Culture and Religion	None	Diverse, globalization, Gaianism, Terra Day	Diverse, environmental stewardship, Festival of Lights
Human Impact	None	Climate change, economic disparities, pollution	Urban sprawl, resource extraction challenges
Moons	Protos	Selene, Noctis	Luminara
Unique Characteristics	Nascent life forms, geothermal activity	Advanced civilization, environmental challenges	Bioluminescent flora and fauna

This table provides a side-by-side comparison, allowing for a quick assessment of the characteristics and conditions of each planet. While Verdantia and Terranova are more advanced and show signs of significant human or sentient impact, Primordis represents a younger, simpler stage of planetary development with nascent life and geothermal activity.



Planet Name: Primordis

Star Type: Class K5V orange dwarf, slightly cooler and dimmer than Earth's Sun.

Atmosphere: Thin, primarily composed of carbon dioxide (85%), methane (10%), and nitrogen (4%), with trace amounts of water vapor and other gases.

Gravity: About 0.85 times Earth's gravity.

Continents: Primordis has two primitive continents, both largely rocky and barren:

- **Protoa:** A rugged terrain with active volcanic activity, releasing gases and contributing to the planet's nascent atmosphere.
- **Neona:** A flatter expanse with shallow, saline seas and numerous geothermal hotspots.

Oceans: A singular vast ocean, named the Primal Sea, occupies a third of the planet. It's relatively shallow, slightly acidic, and contains various dissolved minerals. Around hydrothermal vents, simple life forms have begun to appear.

Climate: The planet's temperature is relatively stable, with warm equatorial regions and cooler poles. Frequent meteorological phenomena include methane storms and dense, foggy mists.

Life:

- **Microbial Mats:** In the shallow waters of Neona and around the hydrothermal vents in the Primal Sea, microbial mats have developed. These are layered biofilms containing various types of bacteria and archaea.
- **Stromatolites:** In some coastal regions, these microbial communities have formed mound-like structures known as stromatolites, the earliest evidence of life on Primordis.
- **Chemotrophic Organisms:** Near hydrothermal vents, simple life forms thrive by converting the chemicals emitted from the vents into energy, a process known as chemosynthesis.

Moons: Primordis is orbited by a single, large moon, named Protos. Its gravitational influence causes significant tidal effects on the Primal Sea, which may play a role in the stirring and mixing of early organic molecules.

Planetary Features:

- **Impact Craters:** Being a young planet, Primordis has numerous impact craters from frequent meteoroid hits. Some of these craters hold pools of liquid, potentially serving as individual biomes.
- **Geyser Fields:** Across Protoa, fields of geysers sporadically release jets of steam and gas into the atmosphere, a testament to the planet's internal geothermal activity.

Primordis is in the earliest stages of its evolutionary journey. It's a world on the brink of life's explosion, providing a snapshot of what early Earth might have been like billions of years ago. This nascent world, with its simple life forms, holds the promise of more complex organisms in the distant future.



Planet Name: Terranova

Star Type: Class G2V yellow dwarf, almost identical to Earth's Sun.

Atmosphere: Primarily composed of nitrogen (78%), oxygen (21%), and trace gases including carbon dioxide, argon, and others.

Gravity: Roughly 1.01 times Earth's gravity.

Continents: Terranova has five main continents:

- **Aurelia:** A vast continent with bustling cities, sprawling suburbs, and vast agricultural lands. Deforestation is a concern in its northern regions.
- **Vespera:** While largely unpopulated due to its inhospitable icy conditions, there are small research settlements and a growing industry focused on mining rare minerals.
- **Solara:** Known for its biodiversity, but also faces rapid deforestation and urban expansion. The continent is the hub of global trade.
- **Mondara:** Dominated by desert landscapes, its coastal regions are densely populated, leading to overfishing and marine habitat degradation.

- **Occidara:** Has the largest mountain ranges, with cities built in valleys. Mining and tourism are major industries, causing environmental stress.

Oceans: Terranova's oceans face issues similar to Earth's: overfishing, coral reef bleaching, and pollution, especially in areas near populous regions.

Climate: Climate change is a pressing issue on Terranova. Rising temperatures, altered precipitation patterns, and increasing extreme weather events are concerns.

Society:

- **Population:** Approximately 8 billion Terranovians. Urbanization is increasing, with more than half the population living in cities.
- **Politics:** Multiple nation-states exist, with varying forms of governance. Terranova has its own version of the United Nations, called the Terranovan Council, working (often contentiously) to address global issues.
- **Economy:** Driven by technology, agriculture, trade, and industry. Economic disparities exist, leading to tensions both within and between nations.

Technology: While technology has advanced, with a focus on renewable energy and AI, there's a significant digital divide between urban centers and more remote regions.

Culture and Religion: Varied cultures, with increasing globalization causing both amalgamation of traditions and a resurgence of regional identities. Environmentalism is a growing cultural and spiritual movement.

Human Impact:

- **Environment:** Overpopulation, industrialization, and deforestation have led to habitat loss, species extinction, and environmental degradation.
- **Climate:** Carbon emissions from industry, transportation, and agriculture contribute to global warming, causing polar ice melt and sea-level rise.
- **Pollution:** Plastic waste and pollutants are ubiquitous, impacting both land and marine ecosystems.

Moons: Terranova is orbited by two moons, Selene and Noctis. They play a central role in Terranovian culture, with festivals celebrating their phases, but also serve as a stark reminder of space exploration's potential and the idea of finding a "backup" planet.

Terranova, in essence, mirrors the beauty, diversity, challenges, and imperfections of our Earth, serving as a reflection of our current human impact and the resulting global issues.



Planet Name: Verdantia

Star Type: Class F3V white star, a bit hotter and brighter than Earth's Sun.

Atmosphere: Composed mainly of nitrogen (75%), oxygen (22%), with trace amounts of argon, carbon dioxide, and a variety of other gases.

Gravity: Roughly 0.92 times Earth's gravity.

Continents: Verdantia is home to three main continents:

- **Zyphera:** Known for its towering bioluminescent forests and rich biodiversity. Heavily populated in the cities, with sprawling urban areas.
- **Serenora:** A continent of varied landscapes, from rolling hills and fertile plains to rocky highlands. Agriculture is prevalent, but overfarming poses a threat.
- **Frostholm:** Predominantly icy with sparse vegetation, populated by hearty species adapted to extreme cold. Small communities extract valuable minerals, impacting the local environment.

Oceans: Verdantia's oceans, collectively known as the Azure Expanse, are teeming with life, including the unique luminescent Plankta. However, they face threats from overfishing and pollution near industrial areas.

Climate: Verdantia experiences a wide range of climates, from the humid, rain-soaked regions of Zyphera to the icy expanses of Frosthalm.

Society:

- **Population:** Approximately 7 billion Verdantians.
- **Politics:** Governed by a planetary council, focusing on eco-centric policies. However, political conflicts arise, especially around resource allocation and environmental protection.
- **Economy:** Driven by biotechnology, sustainable agriculture, and eco-tourism. Economic disparities exist between the lush Zyphera and the more austere Frosthalm.

Technology: Advanced biotechnology, including bio-engineered homes and renewable energy sources. However, remote regions on Frosthalm lack access to the latest advancements.

Culture and Religion: Diverse, with a strong emphasis on environmental stewardship. Verdantia's inhabitants celebrate the Festival of Lights, marking the day when bioluminescent flora is at its brightest.

Human Impact:

- **Environment:** Significant efforts to maintain biodiversity and protect ecosystems, but urban sprawl and resource extraction pose ongoing challenges.
- **Climate:** Minimal contribution to global warming, with a strong focus on sustainable practices. However, natural phenomena like volcanic eruptions can still have a massive impact.
- **Pollution:** Limited, thanks to strict environmental regulations and widespread adoption of eco-friendly practices. However, issues still arise, particularly in industrial zones.

Moons: Verdantia has one small moon, Luminara, which has a minor effect on tides but is a significant cultural symbol, representing balance and harmony.

Verdantia is a lush, vibrant world that has made significant strides in sustainable living, though it still faces challenges in balancing its inhabitants' needs with the preservation of its unique ecosystems.

